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Archaeobotanical Methodology: Results of an Archaeobotany Questionnaire

Abstract
In preparation for a 2010 Society for American Archaeology Forum organized by Christine Hastorf, "Quantification and Presentation: Effective Means of Presenting Plant Evidence in Archaeology," I devised a questionnaire about archaeobotany methodology. In the autumn of 2009, I posted a link to the survey on "www.surveymonkey.com." I alerted archaeobotanists through the Archaeobotany listserv (www.jiscmail.ac.uk/ archaeobotany) and my own website. Since my network is primarily Old World, I also sent a notice to about ten North American archaeobotanists of my acquaintance. Therefore, the sample of survey respondents is not in any way random or representative, and each "case" is not truly independent, as university training and experience in different world areas influence practitioners. At least 138 people started the questionnaire, and 120 finished it. I would like to thank all who took the time to answer the survey. Although the survey did not directly address the topic of the SAA forum, the forum was one solution to a common problem: lack of communication among archaeobotanists. In the mid-1980s, I distributed a methodology questionnaire at the SAA annual meeting; about 25 archaeobotanists responded. The questions were open-ended, but many answers could be grouped. Those responses allowed me to construct multiple choice questions for this survey. Times change, so I added questions about the Internet and other digital matters. The survey was organized in six main sections: field, laboratory, recording, reporting and analysis, suggestions and comments, and demography.

Disciplines
History of Art, Architecture, and Archaeology

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ARTICLE

ARCHAEOBOTANICAL METHODOLOGY

RESULTS OF AN ARCHAEOBOTANY QUESTIONNAIRE

Naomi F. Miller

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The complete survey results are posted online: www.sas.upenn.edu/~nmiller0/AbotQ.pdf

Field

Responses revealed that archaeobotanists are a practical lot. Both manual and flowing-water systems are used (Figure 1). Although most prefer that excavators provide systematically collected samples, we acknowledge financial constraints and give advice about sampling priorities. Nearly everyone needs to know the sediment sample volume, but most do not require that all samples be the same size. Most respondents will remove small artifacts from heavy fractions, along with bird and fish remains; zooarchaeologists, excavators, and others interested in small items might consider helping the archaeobotanist go through the heavy fractions.

Laboratory

The vast majority of respondents will split large samples and sieve by size to facilitate sorting. They usually quantify seeds and charcoal. This surprised me; at least for west Asia, wood charcoal amounts are not commonly published. I was particularly interested in issues of identification. Most reported that they use their personal comparative collection, or have access to one at their institution, but nearly 10% do not have adequate access and must rely on images (Figure 2).

Recording

Nearly everyone counts the various plant parts (seeds, nutshell, identifiable plants parts, tubers). Wood charcoal may be counted, weighed, or both. Other fragmentary material is difficult to deal with; some form of MNI ("minimum number of individuals") or conversion factor by weight or volume maybe be used. One person commented, "Counting of cereal grain fragments remains very problematic—MNI grossly underestimates numbers, and weight conversion assumes that proportions in fragmented grain are the same as in whole grain—not the case either. No easy answer but no one ever discusses the problem!"

Reporting and Analysis

Answers to the question, "Which of the following do you like to see in published reports?" can be grouped as "botanical" (e.g., seed illustrations, descriptions) and "archaeological" (e.g., context information for the samples, field and laboratory procedures). Respondents find that the botanical information provided by others is most useful for interpreting their own material, but for assessing a report's reliability and for comparing sites,

Figure 1. The author floating a sample using a simple barrel flotation system.

the archaeological information about the samples is most important. As digital photography becomes more prevalent, it is getting much easier to get expert opinion not only from people you know, but from other colleagues, too (e.g., via the Archaeobotany listserv and paleobot.org). The biggest complaints about archaeological reporting are inadequate discussion of the archaeological contexts of the samples and accessibility of reports. This section also included a question about fees: most of the respondents charge by the job, though the price might be informally based on estimated number of hours or samples. But it should be noted, as one person commented, "I've never been paid to do work. Ha!" and many do more work than they officially charge for.

Suggestions and Comments: Challenges

I asked, "What do you think are the major challenges, both practical and intellectual, faced by archaeobotanists who study plant macroremains working in your area?" Answers fall into several broad, interrelated categories. The methodological focus of the survey undoubtedly affected the responses. Aside from the importance of integrating archaeobotanical data with the archaeological study, and a few mentions that there should be more synthetic studies, most of the challenges mentioned concern practice, not theory or results.

Figure 2. The author collecting wild wheat in Turkey for her comparative collection.

Funding and respect are key issues. There are not enough jobs, which leads to too few people to do the work and feelings of intellectual isolation. Challenges included "getting the dirt archaeologists to understand the value of our studies and stop them from sticking us into appendices"; "to convinc[ing] the archaeologists that if they would like to have such research done, they should create also positions for archaeobotanists." Inadequate laboratory facilities and/or time to do the work are common problems. Many are concerned that archaeobotanists are not part of the planning, execution, and analysis stages of projects, from sampling strategies to integration of our research in the final publication or report. Several people, especially those who work in poorly known regions, feel there is a need for more/better training, and better access to comparative material (in collections or online). A few people specifically mentioned their own or others' inadequate knowledge of statistical methods appropriate to the research design.

People living and working in the US/Canada and Latin America feel most undervalued; those in the UK seem most concerned about sampling and statistical issues. For those working in Latin America basic plant identification is also an issue. For the Europeans, the challenges concern co-operation and funding. Those working in the Mediterranean seem more concerned about sampling and identification, and those working in the tropics have funding and identification issues.

Suggestions and Comments: Solutions

Answers to the open-ended question, "What would facilitate or enhance your own archaeobotanical research in a practical or intellectual way?" can be grouped, with the most pressing need being improved resources aiding identification (on-line and

Figure 3. Shannon Palus, taught to identify wood charcoal in the Ethnobotanical Laboratory at the University of Pennsylvania Museum, working on material from Gordion, Turkey.

published reference material and databases) and training opportunities. For those living in North America, continuing education and databases for seed and plant part identification seem to be most important. For those in the UK, online report databases would be particularly helpful. Overall, additional workshops and training, online publication and seed and plant part identification databases were mentioned most on people's wish lists (Figure 3).

To be really useful, databases need to be institutionally and/or communally maintained, and should be set up so that content could be added by individuals. Only a few people mentioned databases containing data from site reports; those would be hard to set up since there are no agreed-upon standards, and no one format would be appropriate for all projects. But even imperfect ones (like www.cuminum.de/archaeobotany/) are useful.

Many of the suggestions for improving archaeobotany are actually within our control as a community of practitioners. Even where floras are reasonably well known (Europe and North America), a number of people would like to see higher standards for identification of seeds and plant parts, and access to adequate references collections, descriptions, and images. "Continuing education" workshops and training (seeds, charcoal, statistics), online access to reports, and seed and plant part identification databases were mentioned most on people's wish lists.

Underlying many of the concerns expressed by the respondents is the lack of institutional support for archaeobotany. To this day, many archaeologists do not think of plants (and archaeobotany) as being essential for understanding ancient societies, and that is reflected in the way the field is treated in institutional settings. The desire for databases of reports and identification tools is being addressed by a few individuals who maintain websites, but what we really need are databases that can be contributed to collectively by practitioners and that will outlive their creators. Communication within the field is also necessary for it to advance. Personally, I do not advocate standardizing reports, as sites are all different, but agreement on identifications, statistical methods, and reporting standards requires that we help each other, since students and professionals have very varied backgrounds and skills.

Demographic

Most of the respondents are practicing archaeobotanists with Ph.D.s who have published three or more botanical reports. Most live in North America (42) and Europe (63). Most people work in the general region in which they live, although North Americans and Europeans tend to get around more, presumably due to economic conditions and historical circumstances. About half of 117 listed archaeology as their highest degree, and about 30% listed anthropology. The remainder studied botany, ecology, and earth sciences. Anthropologists and archaeologists are most likely to live in North America or Europe; botanists are most likely to live in the UK, ecologists in Europe. Those living in Europe, Latin America, and North America are most likely to be anthropologists or archaeologists; those living in the UK are more likely to have archaeology or botany backgrounds. The sociocultural interests of most archaeobotanists focus on small-scale agricultural societies rather than foragers, the early civilizations, or historic periods. Of the topics offered, agriculture itself, along with cuisine/foodways and environment were the primary topical concerns; ethnoarchaeology, climate and gender trailed.